

### III. NATURAL RESOURCE ISSUES IN ACEC MUNICIPALITIES

The Parker River/Essex Bay ACEC boundary includes municipalities of Newbury, Rowley, Ipswich, Essex, and Gloucester (Table 2).

**Table 2. Acreage and percentage of towns within the ACEC**

Note: These numbers were obtained through analysis of the MassGIS database. ACEC area is calculated to be 25,500 acres

Town	Approximate acreage	Approximate percentage of ACEC
Newbury	7,387	29
Rowley	3,898	15
Ipswich	9,866	39
Essex	3,435	13
Gloucester	912	4

For the purpose of documenting resource issues in each of these municipalities, local conservation commissions, planning boards, open space committees, and other citizens involved in local resource management efforts were interviewed (see Appendix C for a list of interview questions). Each municipality may have other issues and concerns beyond those documented in this section, however for the purpose of this report, only priority issues related to ACEC resources are cited.

**Table 3. Priority natural resource issues in each ACEC municipality.**

Note: results presented are based solely on the response from interviews with local officials.

ISSUES	ACEC MUNICIPALITY				
	Newbury	Rowley	Ipswich	Essex	Gloucester
Water Supply		X	X		
Water Quality	X		X	X	X
Wetlands	X	X		X	
Barrier Beach	X				
Open Space and Growth Mgt.	X	X	X	X	X

In addition to the interviews, CZM reviewed zoning bylaws, planning board rules and regulations, and wetland bylaws in each of the five ACEC municipalities and compiled the Table of Local Regulatory Strategies in Appendix B. Readers can reference this table if they want more detail about bylaws and regulations in each ACEC city or town. By looking at this matrix, readers can also determine how each municipality's regulatory approach to resource management compares with others in the region.

## TOWN OF NEWBURY

### The following people were interviewed about Newbury resource issues:

Sarah Creighton	Newbury Open Space Committee
Rusty Iwanowitz	Resident/Massachusetts Division of Marine Fisheries
Dave Mountain	Newbury Planning Board/Parker River Clean Water Association
Doug Packer	Newbury Conservation Commission
Alicia Raddatz	Resident/former Topsfield Conservation Agent

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### Water Quality

Some people interviewed felt that water quality is an issue of concern in Newbury. Agricultural runoff, failing septic systems, and effluent from wastewater treatment plants all contribute as sources of pollution that lead to high bacteria counts. Another source of water contamination in Newbury is the active landfill that is adjacent to the Little River and ACEC salt marsh. To address operating violations at the landfill that impact these resource areas, the Department of Environmental Protection (DEP) and the Town of Newbury recently entered into a Interim Order by Consent to improve landfill operations and bring it into compliance with wetlands and solid waste regulations. Officials in Newbury have hired an independent environmental consultant to evaluate and make recommendations for landfill operations.

To help assess water quality issues in the town, the Parker River Clean Water Association (PRCWA) conducted water quality tests and presented results to the Newbury Conservation Commission. The PRCWA is also meeting with riverfront landowners of the Parker River to discuss resource stewardship, including backyard landscaping and septic system maintenance, as well as the regulatory requirements of the state Wetlands Protection Act and the Rivers Protection Act. This outreach is helping residents better understand how upland activities affect marine and freshwater resources.

### Wetlands

The town has adopted Newbury Wetland Bylaw and Regulations for Plum Island as required by the administrative consent order signed with DEP to address issues of sewer and water lines being considered for this barrier beach. The town has agreed to hire a conservation agent that will greatly increase the town's ability to implement and enforce this new bylaw.

An additional approach the town has to protecting wetland resources in the entire town are the Newbury Board of Health Regulations that require development to be set back 300 feet from the Parker River and its tributaries. Some people interviewed feel that these regulations would be more effective if placed within the zoning bylaw since it cannot be waived and is more enforceable than board of health regulations. If this regulation was incorporated into a Parker River Watershed Overlay Protection District within the zoning bylaw, the planning board would have stronger authority to require that all new development meet this 300-foot setback and greater authority than the board of health to enforce the requirement.



photo by Arden Miller

## Barrier Beach Resources

In response to an Administrative Consent Order (ACO) issued by the Massachusetts Department of Environmental Protection (DEP), the Town of Newbury and the City of Newburyport are required to take action to improve the current water supply on the Plum Island by extending the city's water distribution system and making improvements in the wastewater collection system to service the community on this barrier beach. The ACO further directed the town and the city to adopt a Plum Island Overlay District zoning bylaw/ordinance, as well as a wetlands protection bylaw/ordinance and accompanying regulations, to ensure that utility services do not encourage growth and development on this barrier beach as pursuant to Executive Order 181. These land use controls will help ensure that additional growth will not have a negative impact on barrier beach resources or pose a threat to public welfare and safety by building in high coastal hazard areas.



## Open Space and Growth Management

Newbury's large tracts of open space, including protected areas and privately owned parcels, add to the strong rural character of the town. Conservation lands comprise nearly half of the town's total acreage, a large percentage of which is in wetland areas. However, the town still has large tracts of potentially developable land and other areas where redevelopment is transforming small summer cottages to larger, year-round residences. Also, the extension of the commuter train has brought families from the Boston area searching for homes in this smaller rural community. Farmers are selling off their land to developers and are consequently being pushed to marginal areas closer to the Parker River. These factors lead to a loss of open space, an increase in pressure on town resources, such as water supply and water quality, and a diminishment of the town's rural character.

Town officials have had little concern about the loss of open space thus far because half the town is either protected or located under water, and thus considered undevelopable. Moreover, developable tracts of land are often viewed as sources of tax revenue while the town does not have adequate financial resources to purchase land (especially Chapter 61A land) as it becomes available for potentially protected open space. However, recent events illustrate a growing interest in open space protection among residents. At a recent town meeting voters decided to purchase a small piece of open space in Byfield and the town recently completed and received approval for an Open Space Plan that can be viewed on the Newbury Planning Board's website.

At its April, 2001 Annual Town Meeting, Newbury became the first coastal community in the Commonwealth to pass the Open Space Residential Design (OSRD) bylaw. OSRD is a local planning tool that can be used as an alternative to the conventional subdivision of land. OSRD encourages early planning and discussion to preserve open space and natural areas while constructing subdivisions in a more economical and efficient manner. The town views OSRD as an effective way to create neighborhoods, maximize the amount and quality of open space preserved, and provide more opportunities for mixed housing.

Table 4. Newbury reference table		
ACEC resource issue	Case study page #	Action strategy page #
Water quality	22-25	41-42, 45-46
Wetlands	27-28	46
Barrier beach resources		47
Open space/growth management	28-34	42-44, 46-47

## TOWN OF ROWLEY

**The following people were interviewed about Rowley resource issues:**

John Ashworth	Rowley Conservation Commission
Sue Moses	Rowley Open Space Committee
Cliff Pierce	Rowley Planning Board
Tim Purinton	Former Rowley Conservation Agent
Russ Hodgston	Former member of the Rowley Planning Board

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### Water Supply

Rowley's rapid rate of growth and development has impacted the town's water supply. In 1998, the town opened a third public well to accommodate increased population and residential development. Officials also had to implement water-use restrictions to limit water consumption and control the quality of drinking water. In effort to protect the wellhead and prevent further development in these water supply areas, the town recently purchased Pingree Farms and Hunsley Hills, which are considered important parcels in the Rowley Open Space Plan.

### Wetlands

In an attempt to protect wetland resources, particularly those within or adjacent to the ACEC, the town recently drafted a wetland bylaw and regulations. The draft bylaw includes measures to address areas not subject to the state's Wetlands Protection Act, such as isolated vegetated wetlands and ephemeral pools, and creates strict performance standards for resource areas and buffer zones. In particular, the draft bylaw would create a 150-foot buffer zone to the ACEC in which any proposed project would be subject to review and approval by the conservation commission. The draft bylaw was recently turned down at a spring, 2000 town meeting due to a lack of public support. However, officials recognize that efforts to better inform the public and involve them in the next bylaw draft will prove more successful and plan on bringing a modified version of the original bylaw before a future town meeting.

### Open Space and Growth Management

Rowley officials indicate that a damaging pattern of residential and commercial sprawl is threatening to change the character of the town. This pattern of growth can impair the quality and quantity of water resources and wetlands, remove old growth forests and vegetation, and in some cases threaten



resource-based economic activities and employment, such as shellfishing. In addition, unmanaged sprawl increases infrastructure and service expenses to the community.

The town has implemented some measures to address the issue, including a Rowley Rate of Development Bylaw (limiting development to 24 units per year) and zoning changes (increasing the minimum lot area requirements from 40,000 square feet to 60,000 square feet and increasing lot frontage in every district). However, officials remain concerned with issues related to the limited jurisdiction of the conservation commission, the effectiveness of Title V as a growth management tool, and the effectiveness of the Rowley Soils Suitability Bylaw. Some feel that a comprehensive approach to growth management, such as master planning, could tie some of the town's existing strategies together while planning for future development. To work toward that end, the town is currently in the process of preparing a Community Development Plan, as pursuant to Executive Order 418. The planning board is also considering adopting an Open Space Residential Design (OSRD) bylaw as another local planning tool that can be used as an alternative to the conventional subdivision of land. OSRD encourages early planning and discussion to preserve open space and natural areas while constructing subdivisions in a more economical and efficient manner.

<b>Table 5. Rowley reference table</b>		
<b><i>ACEC resource issue</i></b>	<b><i>Case study page #</i></b>	<b><i>Action strategy page #</i></b>
Water supply	21	41, 47
Wetlands	27-28	47
Open space/growth management	28-34	42-44, 48

## TOWN OF IPSWICH

**The following people were interviewed about Ipswich resource issues:**

Kathryn Glenn	Former Ipswich Conservation Agent
Wayne Castonguay	TTOR Northeast Region Ecologist, Coastal Pollution Control Committee
Glenn Gibbs	Ipswich Department of Planning and Development
Glenn Hazelton	Ipswich Open Space Committee
Kerry Mackin	Ipswich River Watershed Association/Growth Management Committee
David Standley	Ipswich Conservation Commission and Open Space Committee

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### Water Supply

The Town of Ipswich obtains most of its water supply from the Parker River Basin, the Ipswich River Basin, and two impoundments in the Egypt River. During summer months, the Ipswich River has been documented with extremely low flows on several occasions. Historically, water use has been



approximately .5 million gallons per day over the allowed amount. The Ipswich River Watershed Association (IRWA) documented a need for the Town of Ipswich to implement Massachusetts Water Conservation Standards (IRWA 1998) (see the Case Studies section).

In order to address the issue of water supply, the town has begun to discuss the need for a water connection moratorium, a pro-active water conservation plan with restrictions, and disincentives for high water consumption. During periods of drought and water shortage, the town has successfully responded with restrictions on water use. When restrictions were imposed in 1997, the town strictly limited outdoor water use to night-time hours and required hand-watering only, which proved effective in reducing the summertime peak water demand (IRWA 1998). The public responded with varied opinions: some believed the town should be responsible for providing sufficient services, while others took initiatives to prepare for drought using such methods as low-maintenance and low-water gardening.

## Water Quality

With approximately 500 acres of intertidal shellfish beds, Ipswich has been a major producer of oysters, mussels, scallops, and clams. However, over the past several years, residential growth and land development have led to increased stormwater runoff and coastal pollution. As a result, shellfish harvest following a rainstorm is prohibited in certain areas. However, the town has been working hard to successfully mitigate some identified water quality impacts and as a result, shellfish beds in Fox and Treadwell Island Creeks have recently been opened to harvesting. Recently, the town appropriated money to upgrade the treatment plant pump station so that it will operate at full capacity. The plant also changed disinfection techniques from chlorination to the more environmentally friendly ultra-violet irradiation as a means to control microbiological contaminants (bacteria/viruses). Ipswich continues to make upgrades in the treatment plant by constructing a new forced main that is part of a project to eliminate or greatly reduce the overflow of raw sewage from discharge points located at the Town Wharf and Choate Bridge. The Town Wharf pump station is also scheduled to have new pumps installed that will better handle the increased flow resulting from installation of the new forced main. With treatment plant improvements, it is likely that rainfall events and stormwater runoff will contribute the primary impacts to water quality and shellfish resources in Ipswich.

The Ipswich Coastal Pollution Control Committee (CPCC) has taken steps to address septic system failures, lobbied for sewage treatment plant improvements, and helped improve farm waste management practices (see the Case Studies section). The CPCC has inventoried every storm drain and ditch that discharges stormwater to coastal areas and has identified 50 sites causing significant amounts of pollution. Thirty-seven of these point sources of pollution were recommended for a best management plan, of which eight sites now have plans implemented (Mehaffey 2000b).

Ipswich is the only ACEC municipality to have a stormwater management plan that addresses many of the water quality issues stated above. This plan is based on information from CPCC reports and is currently being reviewed by the Selectmen. To implement the plan, town officials need technical and financial resources to help them incorporate recommended actions into their workplan.

## Open Space and Growth Management

Some people interviewed for the Town of Ipswich indicate that a primary



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natural resource concern is the potential of future growth and development on Great and Little Necks if the areas are sewered. There is substantial growth potential on 140 "grandfathered" unbuildable lots (rendered unbuildable by their inability to percolate for Title V septic systems) and the 90 acres of land leased to the Air Force. This land would all be developable if the area is sewered. Sewering will also likely cause the demolition of the existing houses in favor of larger homes and increase stormwater runoff from added impervious surfaces. Although one study that investigates potential sewer project costs and impacts was completed for the town in 2000, both officials and residents questioned the accuracy of development projections in the report. Therefore, the town is looking to fund a second study in 2001 to look solely at the development impacts.

The town recently mended its cluster bylaw to include the principles of Open Space Residential Design (OSRD). Like Newbury, the town is using OSRD as an alternative to the conventional subdivision of land to create neighborhoods, maximize the amount and quality of open space preserved, and provide more opportunities for mixed housing.

<b>Table 6. Ipswich reference table</b>		
<b><i>ACEC resource issue</i></b>	<b><i>Case study page #</i></b>	<b><i>Action strategy page #</i></b>
Water supply	21	41, 48
Water Quality	22-25	41-42, 48
Open space/growth management	28-34	42-44, 49

## TOWN OF ESSEX

**The following people were interviewed about Essex resource issues:**

Westley Burnham	Essex Planning Board
Stephan Gersh	Essex Conservation Commission
Ed Perkins	Essex Conservation Commission
Betsy Shields	Essex Planning Board

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### Water Quality

Up until the May, 2000 town meeting, Essex did not have any mechanism within its zoning bylaw for enforcing stormwater standards. To address this concern, the town recently approved an amendment to the site plan review bylaw under the special permit section that includes drainage management review for projects. This action is a major step in reducing water quality impacts to critical resources protected within the town's wetland district, the flood plain district, and the water resources protection district. However, stormwater from residential development is not covered under the site plan/special permit change because these sections only cover commercial and multi-family rather than single family and subdivision development.

For many years, the Town of Essex has struggled with high nutrient concentrations and pollution in the Essex River. When the town instituted a

sampling program in 1995 to investigate pollutant types and sources as part of their wastewater management planning efforts, the primary contributing sources were identified as failing septic systems and stormwater discharge. Recently, an agreement was formulated and approved by both the Town of Essex and the City of Gloucester to allow Essex to send 225,000 gallons of wastewater per day to Gloucester's sewage treatment plant. Although the costs are higher than if Essex built its own sewer, the town avoids having to find a suitable location in town and avoids unwanted discharge of waste into an environmentally sensitive estuary.

## Wetlands

The Town of Essex currently does not have a wetlands bylaw or regulations. Some Town officials believe that the Massachusetts Wetlands Protection Act and the Rivers Protection Act adequately protect these resource areas. Currently, a wetland district defined within the zoning bylaw acts as an overlay district. This district, which primarily addresses water quantity rather than quality, is defined to serve the purposes of flood protection, water table preservation, and conservation of natural resources for education, recreation, and general public welfare. The planning board is the entity acting as the special permit granting authority for exceptions to restricted uses. However, missing from the wetland district are performance standards addressing water quality, open space, and wetland habitat particularly within buffer zones to resource areas.

## Open Space and Growth Management

The Town of Essex is currently not divided into residential, commercial, and industrial zoning districts. Most planning board members feel that the zoning bylaw, with its dimensional and density regulations and special district overlays, is effective in managing growth and that newly created zoning districts would actually increase the rate of development with the added security it allows developers. Similarly, others believe forming zoning districts would have negative effects as it creates many non-conformities since the town has already taken shape with a mix of residential and commercial use. Conversely, others maintain that implementing zoning districts would better define suitable locations for residential, commercial, and industrial development and better guide future growth management in the town.

Some local officials expressed concern about a provision within the water resource protection district of the zoning bylaw that allows more impervious surface coverage for commercial development. The zoning district standards specifically prohibit residential development on lots less than 40,000 square feet or that renders impervious area more than 15% of the lot area. On the other hand, commercial developments are permitted by special permit if more than 15% of lot area or 2,500 square feet is made impervious provided that a system for artificial recharge of stormwater is incorporated into the plan. This provision, combined with the lack of zoning districts, leads to the potential for more commercial development with overall increased impervious surface coverage throughout the town. Attempts to remedy this concern were made at the town meeting in May, 2000 to reduce the residential limitation rather than make requirements for commercial developments more stringent. Local officials feared that if commercial developments were subject to the same standards as residential, the result would be the creation of many existing non-conformities. Non-conforming structures are then subject to more restrictions and may require a Zoning Board of Appeals hearing if additions or alterations are proposed in the future. Ultimately, neither standard has yet to be changed because residents turned down the article, stating that they feared it would endanger the town's watershed.





Table 7. Essex reference table		
ACEC resource issue	Case study page #	Action strategy page #
Water quality	22-25	41-42, 49
Wetlands	27-28	49
Open space/growth management	28-34	42-44, 50

## CITY OF GLOUCESTER

**The following people were interviewed about Gloucester resource issues:**

Sam Cleaves	Former City Planner
Thomas Keough	Community Development Department/ Former Conservation Agent
Dave Sargent	Gloucester Shellfish Advisory Board
Dr. Arthur Socolow	Conservation Commission

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### Water Quality

In 1996, a Wastewater Management Plan (WMP) was written by the City of Gloucester to address issues stemming from water quality concerns and problems with failing septic systems. As a result of inspections conducted under the WMP, 85-90% of on-site septic systems were identified as failing in the Walker Creek 50 foot Critical Buffer Zone (a portion of which falls within the ACEC boundary). Results from wet and dry weather sampling in the creek show that fecal coliform levels exceed those required for both shellfish harvest and swimming standards, with levels > 200 coliform per 100 ml of seawater. However, mandatory septic upgrades in all of West Gloucester are on hold until it is decided what areas will be sewered. As a result, the upgrade requirements (as specified in the WMP) for Walker Creek have not yet been implemented. To remove some pollutants in this area, the city installed re-circulating sand filters at storm drains identified as contamination sites along Walker Creek.

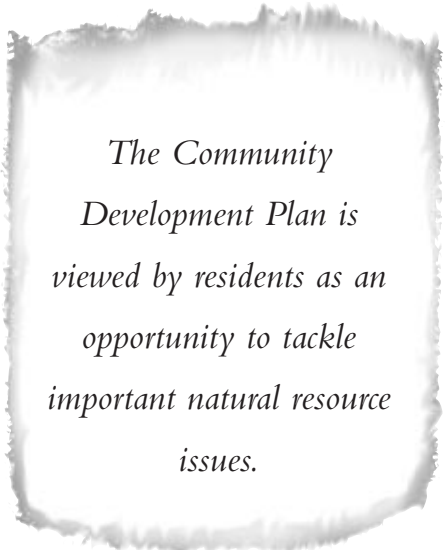
Developments known as Castle View 1 and 2 (in West Gloucester near the ACEC boundary) have also raised water quality concerns. Castle View 1 was constructed before the new state Title V regulations were imposed. Thus, existing septic systems in this area were not designed to meet current performance standards and often do not function properly. Monitoring results have shown elevated levels of fecal coliform bacteria during two surface outbreaks. As a result of the pollution problems in this subdivision, Castle View 2 was constructed with a series of detention basins and re-circulating sand filter systems to reduce bacterial contamination of nearby waters. These management practices appear to be functioning properly as monitoring results show low levels of fecal coliform. Both the Shellfish Department and concerned citizens continue to monitor water quality in West Gloucester and meet with city Health Department officials on a regular basis to discuss their results.

## Open Space and Growth Management

A resource concern expressed by local officials in Gloucester is the loss of open space and wildlife habitat. Although approximately 45% of Gloucester's nearly 15,000 acres of assessed land is open space (Joyner 2000), development in and around these resource areas has led to fragmentation and impacts to habitat. Up until now, Title V and the city's board of health regulations that are even more stringent than the state standards, have helped limit growth. However, officials recognize the need to plan for future development and open space, rather than manage land through sewer and septic permitting.

One method for protecting open space is offered within the Cluster Development Zoning provision found within the city Zoning Ordinance. This provision requires cluster subdivisions to maintain greater than 30% of the land as open space. However, the cluster zoning alternative is rarely used over conventional subdivision design because of the uncertainty of an approval and the potential need to invest a great deal of money during the lengthy special permit process. The planning department is currently considering incorporating concepts of Open Space Residential Design (see the Case Studies section) such as using a preliminary conceptual plan rather than a required definitive plan as an incentive to developers. The City of Gloucester has also recently amended the zoning ordinance to increase the minimum lot size requirements in certain districts and double the minimum lot size when creating "pork-chop" lots. Neither provision necessarily has the effect of reducing building lot coverage, but they do reduce the number of buildable lots.

To address their city's future, Gloucester volunteers and city staff are in the process of writing a 10 year community development plan. The Community Development Plan 2000 Committee has been gathering public opinion about concerns in Gloucester through a series of meetings and have spent nearly a year collecting data and information to support the plan. Thus far, Gloucester residents report that, "protecting natural areas – from shorelines to woods, marshes to meadows – is a chief concern of those who live here" (Joyner 2000). The Community Development Plan is viewed by residents as an opportunity to tackle important natural resource issues.



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**Table 8. Gloucester reference table**

<i>ACEC resource issue</i>	<i>Case study page #</i>	<i>Action strategy page #</i>
Water quality	22-25	41-42, 50
Open space/growth management	28-34	42-44, 51